

Summary report on the collaboration between SciLifeLab and EMBL

2021-2024



EMBL





1. Executive summary

This summary report describes collaborative efforts between SciLifeLab and EMBL from May 2021 to April 2024, in the framework of the Memorandum of Understanding (MoU) signed in 2021. The collaboration focuses on infrastructure, research, training, and the sharing of best practices across various life science disciplines. Some of the activities outlined have stemmed from previously established connections, and the report does not provide a full account of all interactions between the organizations.

The MoU encourages scientific exchange and collaboration, with key initiatives including joint workshops, such as the Planetary Biology Workshop 2022, and the Data Science Workshop 2023. These events brought together experts from both organizations to discuss key thematic areas like biodiversity genomics, data management, and data-driven life sciences.

Notable achievements include the formation of EMBL-SciLifeLab thematic focus groups, collaborative research projects, e.g., as part of EMBL's flagship project Traversing European Coastlines (TREC), and joint applications for funding programs such as the Marie Skłodowska-Curie Actions (MSCA).

Ongoing projects focus on training and establishing new collaborations, with several SciLifeLab researchers receiving funding for infrastructure and research exchange visits and participation in conferences and courses at EMBL.

Future plans involve expanding collaboration in Infection Biology and exploring further funding opportunities to support joint initiatives. To facilitate coordination, regular meetings have been held between representatives from both organizations since October 2021, ensuring effective communication and alignment of shared strategic goals.

Overall, the collaboration between SciLifeLab and EMBL demonstrates a commitment to advancing life science research through shared expertise, resources, and strategic collaborations, with a focus on driving innovation and addressing global challenges.

*This report has been compiled by the
EMBL-SciLifeLab coordination team*

*Stockholm and Heidelberg
April 2024*



EMBL Advanced Training Center in Heidelberg. Site hosted the EMBL-SciLifeLab Planetary Biology Workshop 2022.



Ångström Laboratory at Uppsala University, venue for the SciLifeLab-EMBL Data Science Workshop 2023.



2. Memorandum of Understanding 2021

Cooperation in infrastructure, research and training

The MoU declares a joint ambition to stimulate mutually beneficial scientific and academic exchange and collaboration in various areas of life science research in order to ensure greater connectivity, availability of scientific data, use of shared key technologies and circulation of talent. Specific topics of research interest have been identified based on already existing ties and may be jointly developed in the future.

News item 2021: [Joining forces to solve global challenges](#)

Launch webinar: Building new collaborative links

Online, May 31, 2021 ([Event information and program](#))

The inaugural workshop comprised talks from EMBL and SciLifeLab Directors, as well as paired EMBL-SciLifeLab scientific presentations on topics relevant to the two partnering research organizations. Topics included structural biology, applied cell- and molecular biology, and AI and data-driven life sciences.

News item 2021: [SciLifeLab and The European Molecular Biology Laboratory \(EMBL\) in new collaboration](#)



EMBL Director General Edith Heard and SciLifeLab Director Olli Kallioniemi, 2022. Credit: Kinga Lubowiecka/EMBL



3. Collaboration themes and workshops

Planetary Biology

Research in molecular life sciences allows us to describe and understand the drivers and meaning of diversity: changes that are happening, the underlying mechanisms, and the impact of those changes on ecosystems and planetary health.

SciLifeLab-EMBL Planetary Biology Workshop

Heidelberg and online, May 16-17, 2022 ([Event information](#))

The workshop brought together experts from both organisations representing different research and infrastructure fields, e.g., data management, bioinformatics, metabolomics, molecular imaging, etc. Additionally, two keynote speakers were invited.

Scientific committee

SciLifeLab: Olga Vinnere Pettersson, biodiversity project coordinator at the National Genomics Infrastructure; and Stefan Bertilsson, professor in functional ecology of freshwaters, Swedish University of Agricultural Sciences; both co-leads of Planetary Biology capability, SciLifeLab.

EMBL: Detlev Arendt, group leader, senior scientist and academic mentor postdoctoral training; and Josipa Bilic Zimmermann, Planetary Biology program manager.

Participants

Over 60 on-site participants from each organization, many more online.

SciLifeLab had 14 speakers on site and two remote, and EMBL had 13 speakers on site and two remote.

Program Sessions

- Biodiversity genomics and reference genome sequencing
- Ecology and evolution
- Biogeochemistry and ecosystems
- Data-driven planetary biology

Panel Discussions

- Technological infrastructure needs for planetary biology research
- Data collection in planetary biology research
- Data management and processing in planetary biology research

Keynotes

- Chromosomally complete genomes across the tree of life, Mark Blaxter, program lead for Tree of Life programme and senior group leader in evolutionary genomics at Wellcome Sanger Institute
- Eco-evolutionary dynamics of phage-host interactions in the wild, Martin Polz, professor at University of Vienna in the department of microbiology and ecosystem science.

News items

[EMBL and SciLifeLab in joint planetary biology effort](#)

[EMBL and SciLifeLab foster new connections](#)

Continued Planetary Biology exchange

Responsible SciLifeLab: Olga Vinnere Pettersson and Stefan Bertilsson

Responsible EMBL: Josipa Bilic Zimmermann and relevant Planetary Biology theme group leaders, e.g., Detlev Arendt and Peer Bork.

Linking Molecules to Ecosystems

Plans for further exchange at the Planetary Biology symposium as part of the “Linking Molecules to Ecosystems” conference in Göteborg on September 17-18, 2024. Edith Heard, EMBL Director General, has been invited to give a keynote on EMBL’s Planetary Biology Transversal Theme.

EMBL Mobile Laboratories

Collaborative applications are being discussed which could utilize the scientific services offered by the EMBL mobile laboratories. Potentially, this could involve combining genomic data with environmental, biogeochemical and pollution data. Environment or biotope for study to be decided, e.g., urban environments, comparisons of different environments related to pollution levels, study of epi-genomes, pathogens and invasive species, population level data.

EMBL - Traversing European Coastlines, TREC

The TREC project is an initiative by EMBL in cooperation with Tara Ocean Foundation and European Marine Biological Resource Center (EMBRC), and aims to strengthen scientific understanding of the two major ecosystems on our planet – ocean and land. Thanks to TREC, the study of biodiversity at land/sea interfaces has the potential to develop novel and bio-based solutions for climate change, biodiversity loss, biochemical flows, and pollution.

During the joint Planetary Biology workshop in Heidelberg in 2022, SciLifeLab's Planetary Biology Capability Leads connected with EMBL's TREC leads and further exchanged expertise on ways to facilitate and optimize output of the the project in Sweden. The Swedish researchers consulted the TREC team in terms of appropriate sampling sites in Sweden, resulting in collaborative sample collections at the Stockholm University Baltic Sea Centre Askö and Kristineberg Centre for Marine Research and Innovation by EMBL and SciLifeLab colleagues.

Data Science

There were already several links and contacts in place between SciLifeLab and EMBL before the launch of the formal collaboration, which were the starting point for the first co-hosted activity in Data Science in the form of a workshop in 2023.

EMBL-SciLifeLab Data Science Workshop

Uppsala and online, May 15-16, 2023 ([Event information](#))

Scientific committee

SciLifeLab: Johan Rung, head of Data Centre, Hanna Kulima, vice head of Data Centre, and Carolina Wahlby, professor in quantitative microscopy.

EMBL: Jan Korbel, genome biology, head of Data Science; Rupert Lueck, head of IT services; and Rolf Apweiler, EMBL-EBI associate director.

Participants

Total: 132 on-site, 58 online participants

SciLifeLab: 146, EMBL: 28, Other: 16

Sessions

- Internal and external training and support
- Provision of public data services, calculation tools
- Artificial intelligence
- Integrated data management and sharing of scientific workflow
- Technical infrastructure, calculation solutions
- Image processing
- Human data

News item: [EMBL and SciLifeLab cooperate on data science](#)

Continued data science exchange

Responsible SciLifeLab: Johan Rung and Carolina Wahlby

Responsible EMBL: Jan Korbel and Rupert Lück

"We are not a track of our own - It's important to intertwine and tag-on new events, and evolve by bringing in new people"

A collaborative application has been submitted by the SciLifeLab Wahlby and EMBL Tischer groups to fund postdocs in imaging applications. The collaboration has potential to be a nucleus for further researchers and infrastructure facilities to join in later on.

Thematic focus groups led by SciLifeLab Data Centre, for example on:

- Kubernetes-based service hosting (for own services and as a service to content developers)
- Research software engineering community coordination
- System support for research data management.
- Open Science-based research assessments (e.g., how to implement CoARA principles)
- Focus group led by Rupert Lück, EMBL

A survey has been conducted among 119 registered EMBL and SciLifeLab participants at the Data Science workshop. Only 16 recipients replied to the survey, therefore the below results are not fully representative, but nonetheless reconfirm the impressions and thematic focus areas which were previously identified during the workshop. Almost half of the respondents said they would be willing to lead on the development of a specific working group

As of now, there are ongoing or planned joint activities mainly in the following thematic areas:

- Collaboration on development of training concepts
- Standardizing compute protocols and analysis
- Exchanging knowledge and methods for training platform technical infrastructure
- Knowledge exchange between IT teams regarding technology and platforms supporting our science
- Harmonizing metadata definition

Infection Biology

A third possible theme for joint activities lies in Infection Biology, where synergies with other initiatives bear the potential to expand the scope of a workshop and build an even larger collaborative network: SciLifeLab, EMBL, Laboratory for Molecular Infection Medicine Sweden (MIMS), the Data-Driven Life Sciences (DDLS) research area Epidemiology and biology of infection, and InfraLife. Initial discussions were held during the Data Science workshop with EMBL, MIMS and SciLifeLab leadership and are currently being followed-up on with more concrete coordination and planning.

Workshop 2025

A workshop within the theme of Infection Biology is planned to take place in Umeå in February 2025.

Scientific committee

- Oliver Billker, SciLifeLab, DDLS, and MIMS
- Ulf Ribacke, Pandemic laboratory preparedness program, SciLifeLab
- Nassos Typas, IBTT
- Maria Bernabeu, IBTT

DDLS - Data Driven Life Science

MIMS - Laboratory for Molecular Infection Medicine Sweden

IBTT - EMBL Infection Biology Transversal Themes

Themes

- Environmental epidemiology, pathogen genomics, pandemic preparedness
- Antimicrobial resistance
- Systems immunology
- Microbiome
- Imaging infection – from organisms to structure



Conference dinner in Uppsala during the EMBL-SciLifeLab Data Science Workshop 2023.

4. Initiatives

Training

SciLifeLab Lead of Training Hub Jessica Lindvall and Cath Brooksbank, Head of Training at the EMBL-European Bioinformatics Institute (EMBL-EBI), are engaged in discussions and exchange with regards to internal external training and support.

A collaboration started in 2023 where EMBL and SciLifeLab, together with other partners, are developing a new system for training administration. The system is intended to help with several of the processes involved in setting up and handling a training event. It is intended to be used by both SciLifeLab and EMBL, ensuring long-term collaboration including system development and maintenance.

Annual SciLifeLab calls for exchange with EMBL

Researchers, both in academic groups and the SciLifeLab infrastructure have been granted funding for research lab and infrastructure visits, as well as participation in conferences and courses.

In total, 14 SciLifeLab researchers have been granted funding support for EMBL visits.

2022 call

News item: [Travel grants for promoting SciLifeLab collaboration with EMBL](#)

2023 call

News item: [SciLifeLab researchers visit EMBL](#)

Initiatives within Marie Skłodowska-Curie Actions (MSCA)

EMBL ARISE

Through the MoU between SciLifeLab and EMBL, SciLifeLab's infrastructure became a formal partnering host for EMBL's MSCA program: Career Accelerator for Research Infrastructure Scientists (ARISE, offering fellow secondments in 2023. In 2024, SciLifeLab, through a Letter of Commitment, is now also an Associated partner in EMBL's application for ARISE2 in the 2023 MSCA COFUND call. Should the application be successful, SciLifeLab and EMBL PIs will co-design projects for up to 4 ARISE Fellows and have joint projects throughout the 3 year Fellowship period. SciLifeLab also committed to participating as secondment partners and to developing training within the program.

SciLifeLab postdoc program PULSE

In 2024, EMBL is now through a Letter of Commitment also a new partner with SciLifeLab in the application for the MSCA-COFUND SciLifeLab PULSE proposal. If funded, this postdoc training program will be launched in 2024, and EMBL will contribute to training and secondments for PULSE postdocs.

Identifying emerging funding opportunities for collaboration in identified areas of synergy

Collaboration managers will look into available calls and other opportunities to further support and promote exchange between EMBL and SciLifeLab.

Andrea Behanova, receiver of SciLifeLab grant for exchange, at the microscope, and host Alvaro Crevenna, EMBL Rome.



5. Resources for strategic collaboration

Collaboration Management

Since October 2021, more than 40 EMBL-SciLifeLab meetings have been organized to manage the collaboration and activities. These include: Directors' meetings, scientific committee meetings, session preparatory meetings with experts and speakers from both organizations, administrative meetings, and evaluation meetings.

Coordinating staff at SciLifeLab and EMBL

SciLifeLab representatives

- Disa Larsson Hammarlöf, Research Coordinator
- Josefin Lundgren Gawell, External Relations Office
- David Gotthold, Project Coordinator
- Alice Sollazzo, Project Coordinator

EMBL representatives

- Sarah Kaiser, International Relations Office
- Dilyana Spasova, Operations Officer, International Relations
- Hana Jurina, Member States Lead

